

REMARKS

Claims 1-11 and 23-40 are pending in the application. Claims 31, 34, and 39 have been amended. Claims 12-22 were previously withdrawn. Reconsideration and allowance of the application are respectfully requested in light of the foregoing amendments and the following remarks.

Claims 31 and 39 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Claims 31 and 39 have been amended to correct the lack of antecedent basis for the claims terms, “said discharging mechanism” and “said drive mechanism,” respectively.

Claims 1, 2, 4, 6-8, 10, 11, 23, 24, 26, 28-30, 32-36, 38, and 40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,906,682 to Bouras (“Bouras”). The rejection is traversed.

The present invention, as embodied by independent claims 1, 23, and 34 relates to an apparatus for manufacturing a semiconductor device utilizing a droplet system, which is the same as a pin transfer system. The position of a substrate holding unit is controlled such that minute liquid droplets of raw sealant resin are suitably discharged from a discharging device in an improved manner on the substrate area, excluding the area where bump electrodes are formed. Specifically, each of claims 1, 23, and 34 recite a discharging mechanism for “discharging droplets of raw sealant resin” onto portions of a semiconductor wafer substrate.

Unlike the claimed droplet system, Bouras, on the other hand, teaches an underfill epoxy system. See col. 1, line 12 and col. 2, lines 26-29. The apparatus taught by Bouras uses a capillary action that the claimed invention does not. In addition, Bouras teaches an apparatus having a weighscale, which measures the weight of the viscous material and outputs a signal concerning the weight, and a closed loop control means. See col. 3, lines 15-19. Bouras does not teach or suggest the claimed discharging mechanism for “discharging droplets of raw sealant resin” onto portions of a semiconductor wafer substrate. In fact, Bouras teaches away from the

present invention, embodied by independent claims 1, 23, and 34, stating that pin transfer systems are fast but undesirable because they are “expensive and inflexible and can form only dots.” Col. 1, lines 25-27. The present invention, in contrast, is an improved pin transfer/droplet system.

For at least these reasons, Bouras does not anticipate the claimed invention as embodied by claims 1, 23, and 34. Claims 2, 4, 6-8, 10, 11, 24, 26, 28-30, 32-33, 35-36, 38, and 40 each depend, either directly or indirectly, from one of claims 1, 23, and 34 and are also allowable for at least these reasons. Withdraw of the rejection is respectfully requested.

Claims 3, 5, 25, 27, 31, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bouras and further in view of U.S. Patent No. 5,935,375 to Nakazawa (“Nakazawa”). The rejection is traversed.

Claims 3 and 5 depend from claim 1; claims 25, 27, and 31 depend from claim 23, and claim 37 depends from claim 37. For whatever Nakazawa teaches regarding a plurality of discharging nozzles, Nakazawa does not cure the deficiencies of Bouras discussed above. Accordingly, none of the references of record, whether considered alone or in combination, teach or suggest all of the limitations recited by claims 3, 5, 25, 27, 31, and 37. For at least these reasons, withdraw of the rejection is requested.

Claims 5, 9, 27, 31, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bouras and further in view of U.S. Patent No. 6,007,631 to Prentice (“Prentice”). The rejection is traversed.

Claims 5 and 9 depend from claim 1; claims 27 and 31 depend from claim 23, and claim 39 depends from claim 37. For whatever Prentice teaches regarding at least two kinds of discharging mechanisms being capable of discharging raw sealant resins, Prentice does not cure the deficiencies of Bouras discussed above. Accordingly, none of the references of record, whether considered alone or in combination, teach or suggest all of the limitations recited by claims 5, 9, 27, 31, and 39. For at least these reasons, withdraw of the rejection is requested.

Claims 5, 9, 27, 31, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bouras and further in view of U.S. Patent No. 6,017,392 to Cavallaro ("Cavallaro"). The rejection is traversed.

Claims 5 and 9 depend from claim 1; claims 27 and 31 depend from claim 23, and claim 39 depends from claim 37. For whatever Cavallaro teaches regarding at least two kinds of discharging mechanisms being capable of discharging raw sealant resins, Cavallaro does not cure the deficiencies of Bouras discussed above. Accordingly, none of the references of record, whether considered alone or in combination, teach or suggest all of the limitations recited by claims 5, 9, 27, 31, and 39. For at least these reasons, withdraw of the rejection is requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance and the Examiner is respectfully requested to pass the application to issuance.

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Respectfully submitted,

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